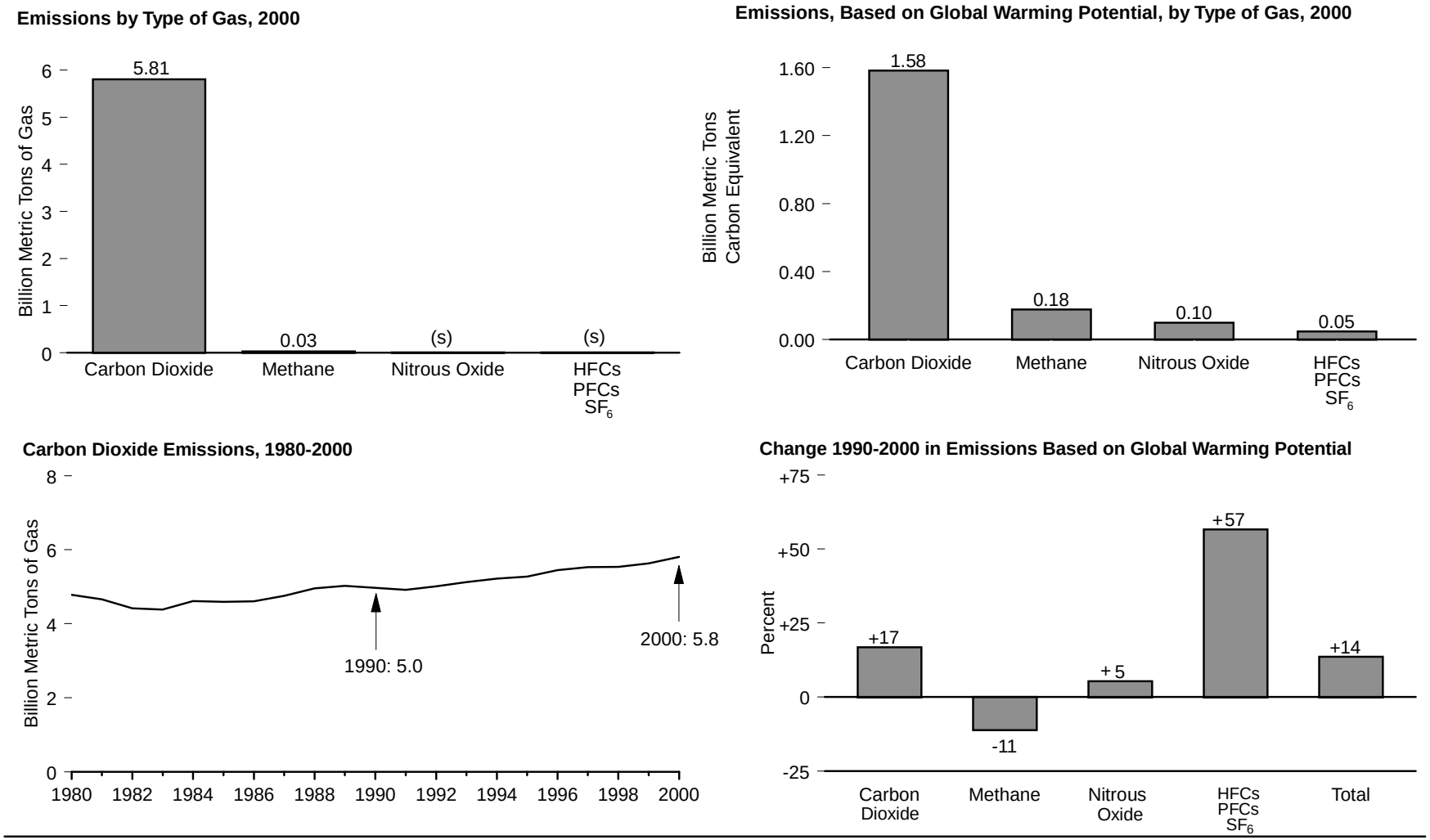
12 Environmental Indicators

"Harpers Ferry, Junction of the Rivers Shenandoah and Potomac." Engraving by W. Goodacre and James Archer, published in *The History and Topography of the United States of North America*, by John Howard Hinton, 1852. From the collection of the National Park Service, Harpers Ferry National Historical Park, Accession #1297.

Figure 12.1 Estimated Emissions of Greenhouse Gases



(s)=Less than 0.005 billion metric tons of gas.

Notes: • HFCs=hydrofluorocarbons; PFCs=perfluorocarbons; and SF_6 =sulfur hexafluoride. • Because vertical scales differ, graphs should not be compared.

Source: Table 12.1.

Table 12.1 Estimated Emissions of Greenhouse Gases, 1980-2000

Year	Greenhouse Gases (million metric tons of gas)				Greenhouse Gases, Based on Global Warming Potential [1] (million metric tons carbon equivalent)				
	Carbon Dioxide [2]	Methane	Nitrous Oxide	HFCs PFCs SF_6	Carbon Dioxide	Methane	Nitrous Oxide	HFCs PFCs SF_6	Total
1980	4,783.8	R27.7	1.0	(s)	1,305	R159	82	R19	1,565
1981	4,661.2	R28.3	1.0	(s)	1,271	R162	84	R20	R1,538
1982	4,417.6	R28.7	1.0	(s)	1,205	R164	82	R15	1,466
1983	4,383.9	R28.5	0.9	(s)	1,196	R163	R78	R18	1,454
1984	4,619.0	R29.2	1.0	(s)	1,260	R167	85	21	1,532
1985	4,595.8	R29.5	1.1	(s)	1,253	R169	96	R19	1,537
1986	R4,602.6	R29.0	1.1	(s)	1,255	R166	R94	R20	R1,535
1987	4,753.6	R29.6	1.1	(s)	1,296	R169	R94	R21	R1,581
1988	4,961.8	R29.8	1.1	(s)	1,353	R171	91	R25	1,640
1989	R5,023.5	R30.1	1.1	(s)	R1,370	R172	96	26	R1,664
1990	R4,969.4	31.7	1.2	(s)	R1,355	R199	R94	R30	R1,678
1991	R4,917.7	31.9	1.2	(s)	R1,341	R200	R96	R28	R1,665
1992	R5,013.0	R31.8	1.2	(s)	R1,367	R200	R98	R29	R1,694
1993	R5,130.4	R31.0	1.2	(s)	R1,399	R194	R98	R30	R1,722
1994	R5,224.4	R31.0	1.3	(s)	R1,425	R194	R106	R32	R1,757
1995	R5,273.5	R31.1	1.3	(s)	R1,438	R195	R101	R35	R1,770
1996	R5,454.8	R29.9	1.2	(s)	R1,488	R188	R101	R39	R1,815
1997	R5,533.0	R29.6	1.2	(s)	R1,509	R186	R99	R42	R1,836
1998	R5,540.0	R28.9	1.2	(s)	R1,511	R181	R99	R46	R1,836
1999	R5,630.7	R28.7	1.2	(s)	R1,536	R180	R100	R45	R1,860
2000P	5,805.5	28.2	1.2	(s)	1,583	177	99	47	1,906

[1] Emissions of greenhouse gases were weighted based upon their relative global warming potential (gwp), with carbon dioxide gas equal to a weight of one, and were converted to carbon equivalent by dividing by 3.667. The use of updated estimates of gwp resulted in a number of revisions to previously published data. It is also important to note that revisions in estimated emissions result from revisions in energy consumption as well.

[2] Carbon dioxide emissions do not reflect the revised electric power statistics that are presented in other sections of the *Annual Energy Review 2001.*

R=Revised. P=Preliminary. (s)=Less than 0.05 million metric tons.

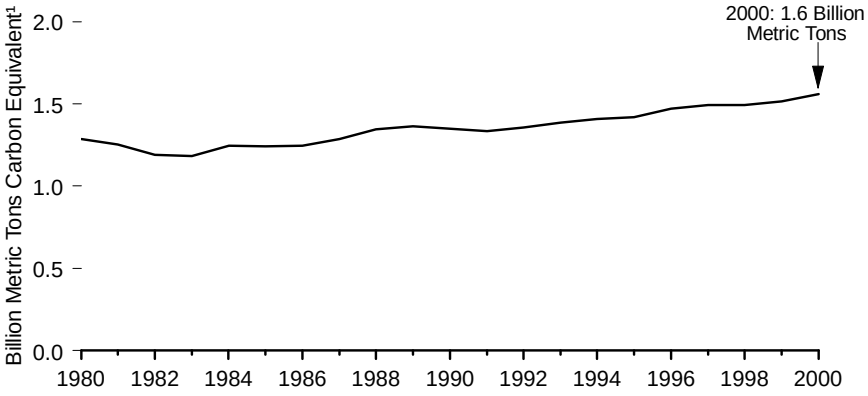
Notes: • HFCs = hydrofluorocarbons; PFCs = perfluorocarbons; and SF_6 = sulfur hexafluoride. • Emissions are from anthropogenic sources. Anthropogenic means produced as the result of human activities, including emissions from agricultural activity and domestic livestock. Emissions from natural sources, such as wetlands and wild animals, are not included. • Because estimation methods for greenhouse gases are currently being developed, data are frequently revised on an annual basis in keeping with the latest findings of the international scientific community. For some of the gases, such as carbon dioxide, revisions are a small percentage of the total (on the order of 1 percent), but for other gases, such as nitrous oxide, they may be on the order of 100 percent.

Web Page: http://www.eia.doe.gov/environment.html.

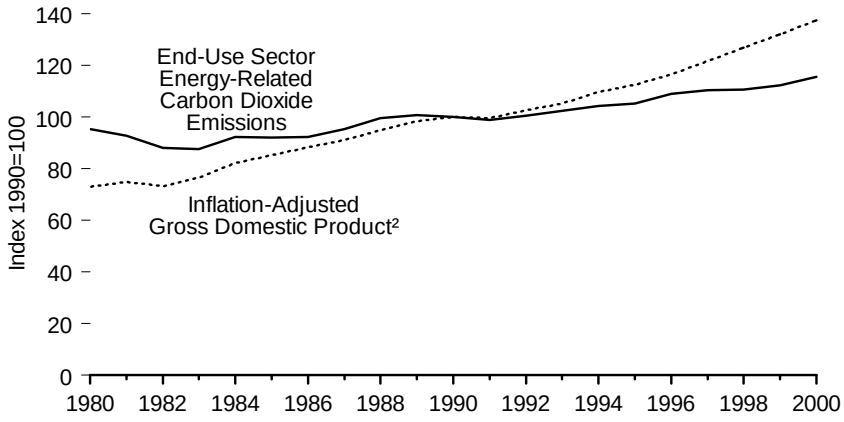
Sources: • 1980-1989—Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States,* annual reports. • 1990 forward—EIA, *Emissions of Greenhouse Gases in the United States 2000* (November 2001), Tables ES1 and ES2.

Figure 12.2 Carbon Dioxide Emissions From Energy Consumption by Sector

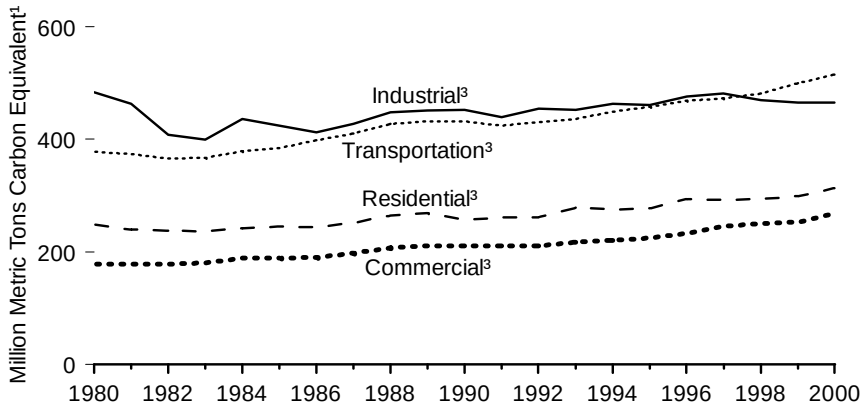
End-Use Sector Total, 1980-2000



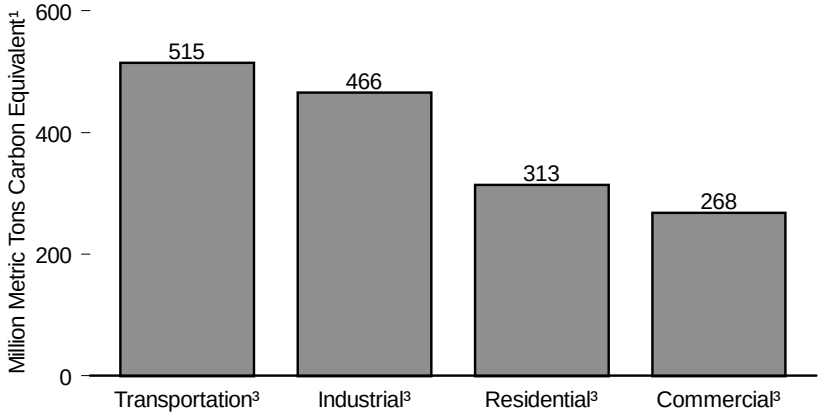
Economic Growth and Carbon Dioxide Emissions, 1980-2000



By End-Use Sector, 1980-2000



By End-Use Sector, 2000



[1] Tons of carbon equivalent can be converted to tons of carbon dioxide gas by multiplying by 3.667. One ton of carbon equivalent = 3.667 tons of carbon dioxide gas.

[2] Based on chained (1996) dollars.

[3] Electric power sector emissions are distributed across the end-use sectors.

Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 1.5 and 12.2.

Table 12.2 Carbon Dioxide Emissions From Energy Consumption by Sector, 1980-2000

(Million Metric Tons Carbon Equivalent [1])

Year	End-Use Sectors					Electric Power Sector [2]
	Residential	Commercial	Industrial	Transportation	Total	
1980	247.9	178.0	484.2	378.1	1,288.2	417.0
1981	239.4	177.9	463.3	374.1	1,254.7	419.1
1982	237.9	178.4	408.2	365.6	1,190.1	400.1
1983	236.3	180.1	399.6	366.9	1,182.9	410.9
1984	241.6	189.2	436.5	379.0	1,246.3	429.1
1985	245.4	189.3	424.1	384.3	R1,243.0	437.6
1986	244.2	190.6	412.5	399.0	1,246.2	435.9
1987	251.5	197.6	427.9	411.0	1,287.9	454.0
1988	264.5	207.3	447.9	427.3	1,347.0	474.7
1989	R268.4	R210.8	R451.1	R432.5	R1,362.8	486.1
1990	R257.0	R210.3	R452.7	431.8	R1,351.7	507.0
1991	R261.6	R210.4	R439.8	R424.2	R1,336.0	506.0
1992	R261.8	R210.8	R455.1	431.1	R1,358.7	512.0
1993	R278.4	R217.2	R452.9	436.4	R1,384.8	532.4
1994	R275.8	R220.4	R463.3	449.3	R1,408.8	540.7
1995	R277.9	R224.6	R461.1	457.8	R1,421.3	542.5
1996	R293.9	R233.1	R476.1	468.9	R1,471.9	562.1
1997	R292.8	R245.4	R481.5	473.6	R1,493.3	583.1
1998	R293.7	R250.4	R469.5	R481.5	R1,495.2	607.2
1999	R298.8	R253.1	R465.8	R499.4	R1,517.1	612.6
2000P	313.4	267.8	465.7	514.8	1,561.7	641.6

[1] Tons of carbon equivalent can be converted to tons of carbon dioxide gas by multiplying by 3.667. One ton of carbon = 3.667 tons of carbon dioxide gas.

[2] Electric power sector emissions are distributed across the end-use sectors.

R=Revised. P=Preliminary.

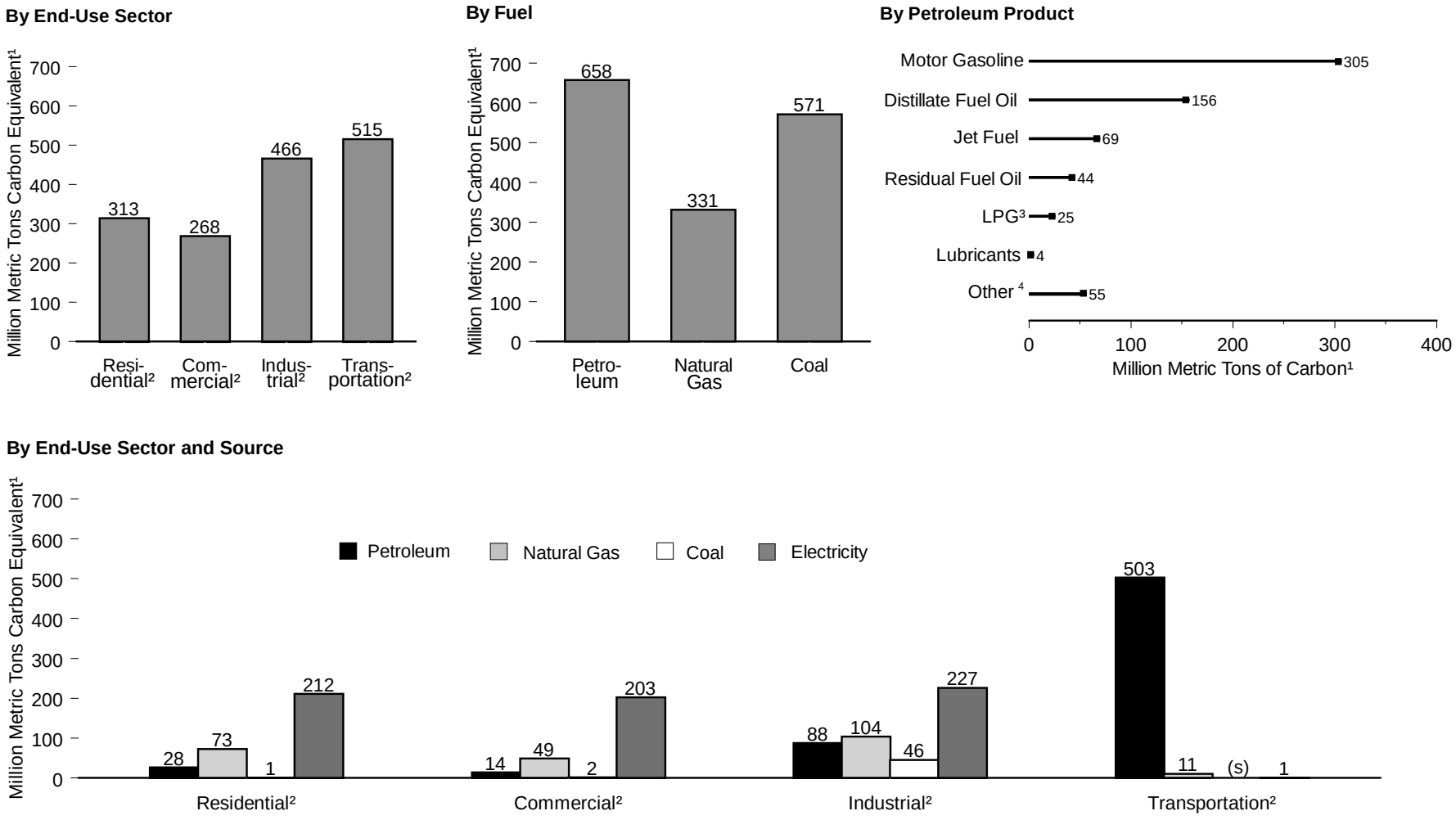
Notes: • Includes energy from petroleum, natural gas, and coal. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/environment.html.

Sources: • 1980-1989—Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States,* annual reports. • 1990 forward—EIA, *Emissions of Greenhouse Gases in the United States 2000* (November 2001), Table 5.

Data in this table come from *Emissions of Greenhouse Gases in the United States 2000*, which does not reflect the revised electric power statistics that are presented in other sections of the *Annual Energy Review 2001*. The electric power sector in this table includes the fuel consumed by combined-heat-and-power plants to generate electricity (fuel consumed for useful thermal output is included in the industrial sector). *Emissions of Greenhouse Gases in the United States 2001* will include the revised electricity statistics.

Figure 12.3 Carbon Dioxide Emissions From Energy Consumption by Sector by Energy Source, 2000



[1] Tons of carbon equivalent can be converted to tons of carbon dioxide gas by multiplying by 3.667. One ton of carbon equivalent = 3.667 tons of carbon dioxide gas.

[2] Total emissions in the electric power sector are distributed across the end-use sectors.

[3] Liquefied petroleum gases.

[4] Aviation gasoline, kerosene, and other products.

(s)=Less than 0.5 million metric tons.

Source: Table 12.3.

Table 12.3 Carbon Dioxide Emissions From Energy Consumption by Sector by Energy Source, 2000

(Million Metric Tons Carbon Equivalent [1])

Energy Source	End-Use Sectors					Electric Power Sector	Total
	Residential	Commercial	Industrial	Transportation	Total		
Petroleum	27.5	14.2	87.6	502.5	631.6	26.0	657.7
Aviation Gasoline	—	—	—	0.7	0.7	—	0.7
Distillate Fuel Oil	16.2	8.6	20.8	106.6	152.2	[2] 3.9	156.1
Jet Fuel	—	—	—	68.5	68.5	—	68.5
Kerosene	2.0	0.5	0.2	—	2.7	—	2.7
Liquefied Petroleum Gases	9.3	1.6	13.7	0.2	24.8	—	24.8
Lubricants	—	—	1.9	1.8	3.7	—	3.7
Motor Gasoline	—	0.9	2.9	301.5	305.3	—	305.3
Residual Fuel Oil	—	2.6	0.5	23.1	26.2	[3] 17.6	43.8
Other	—	—	47.6	—	47.6	[4] 4.4	52.0
Natural Gas	73.2	49.3	104.0	11.4	237.9	93.2	331.2
Coal	1.2	1.8	45.7	(s)	48.7	522.4	571.1
Coal Coke Net Imports	—	—	1.7	—	1.7	—	1.7
Electricity	211.5	202.5	226.7	0.9	641.6	—	—
Electricity Sales to the Grid (-)	—	—	13.2	—	13.2	—	—
Total	313.4	267.8	465.7	514.8	1,561.7	[5] 641.6	1,561.7

[1] Tons of carbon equivalent can be converted to tons of carbon dioxide gas by multiplying by 3.667. One ton of carbon = 3.667 tons of carbon dioxide gas.
[2] Light oil.
[3] Heavy oil.
[4] Petroleum coke.
[5] Total emissions in the electric power sector are distributed across the end-use sectors.

— = Not applicable. (s)=Less than 0.05 million metric tons.

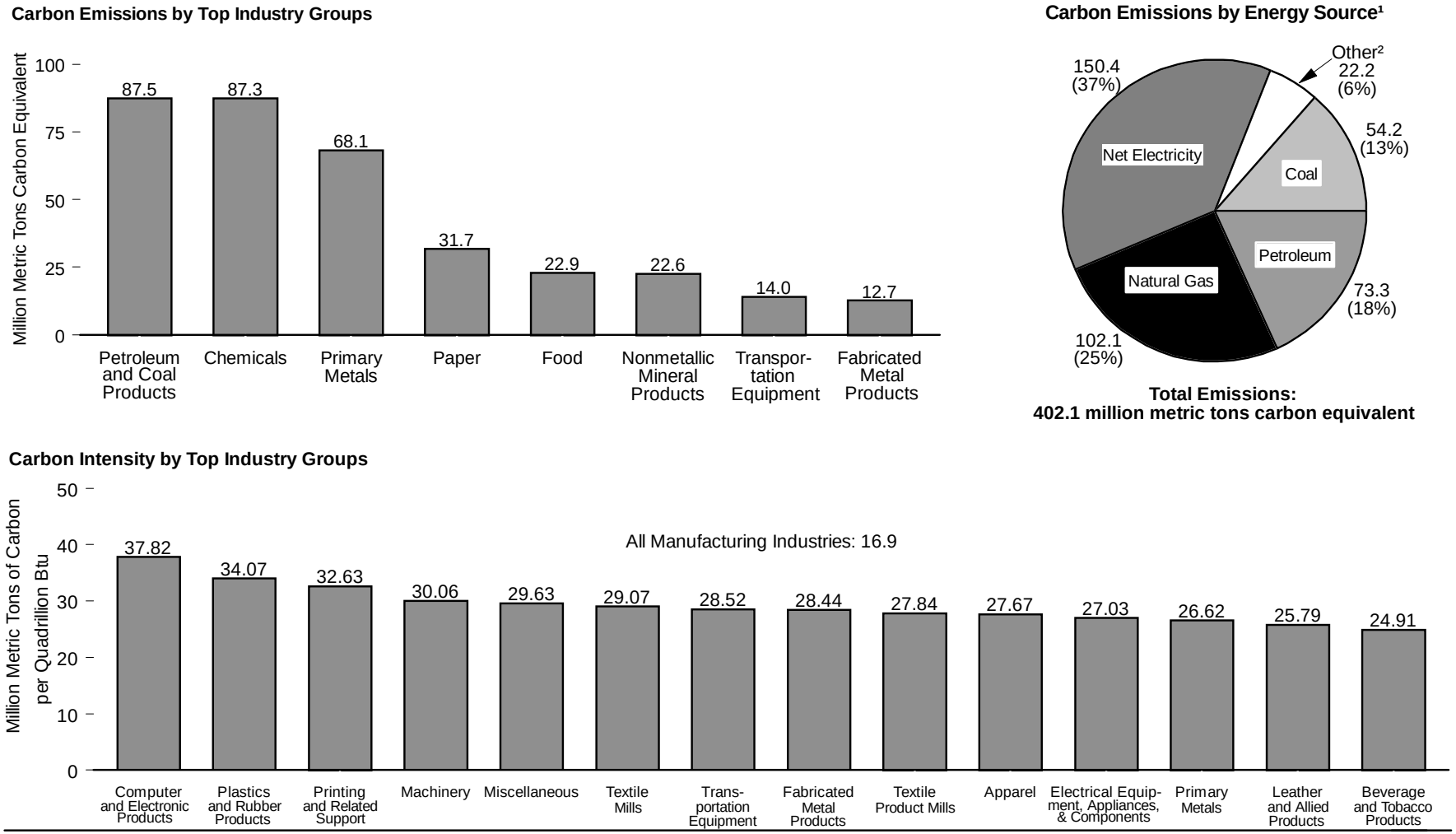
Notes: • Data are preliminary. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/environment.html.

Source: Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States 2000* (November 2001), Tables 6-10.

Data in this table come from *Emissions of Greenhouse Gases in the United States 2000*, which does not reflect the revised electric power statistics that are presented in other sections of the *Annual Energy Review 2001*. The electric power sector in this table includes the fuel consumed by combined-heat-and-power plants to generate electricity (fuel consumed for useful thermal output is included in the industrial sector). *Emissions of Greenhouse Gases in the United States 2001* will include the revised electricity statistics.

Figure 12.4 Carbon Dioxide Emissions From Energy Consumption for Manufacturing Industries, 1998



¹ Sum of shares does not equal 100 percent due to independent rounding.

² All other types of energy that respondents indicated were consumed.

Source: Table 12.4.

Table 12.4 Carbon Dioxide Emissions From Energy Consumption for Manufacturing Industries, 1998

NAICS [2] Code	Major Group	Carbon [1] Emissions (million metric tons carbon equivalent)						Carbon Intensity [5]
		Coal	Natural Gas	Petroleum	Net Electricity [3]	Other [4]	Total	
311	Food	3.3	8.2	0.8	10.6	(s)	22.9	21.90
312	Beverage and Tobacco Products	0.7	0.6	0.1	1.2	0.0	2.7	24.91
313	Textile Mills	0.5	1.5	0.4	5.1	(s)	7.4	29.07
314	Textile Product Mills	0.1	0.4	Q	0.9	0.0	1.4	27.84
315	Apparel	(s)	0.3	0.1	0.9	0.0	1.3	27.67
316	Leather and Allied Products	0.0	0.1	(s)	0.1	0.0	0.2	25.79
321	Wood Products	0.1	1.1	0.3	3.6	0.1	5.1	9.93
322	Paper	7.0	8.4	4.1	11.9	0.2	31.7	11.54
323	Printing and Related Support	0.0	0.6	(s)	2.5	(s)	3.2	32.63
324	Petroleum and Coal Products	0.0	14.5	47.7	6.2	19.0	87.5	11.95
325	Chemicals	7.8	34.1	15.4	28.6	1.3	87.3	14.40
326	Plastics and Rubber Products	0.1	1.8	0.2	9.1	0.0	11.2	34.07
327	Nonmetallic Mineral Products	7.6	6.4	1.8	6.6	0.2	22.6	23.09
331	Primary Metals	25.8	13.4	0.9	27.0	1.0	68.1	26.62
332	Fabricated Metal Products	0.2	3.5	0.3	8.7	(s)	12.7	28.44
333	Machinery	0.2	1.4	0.1	4.8	0.1	6.5	30.06
334	Computer and Electronic Products	0.0	0.9	(s)	6.8	0.0	7.8	37.82
335	Electrical Equipment, Appliances, and Components	(s)	0.8	0.1	2.7	0.2	3.9	27.03
336	Transportation Equipment	0.8	3.1	0.5	9.7	0.1	14.0	28.52
337	Furniture and Related Products	0.1	0.4	(s)	1.5	(s)	2.0	22.52
339	Miscellaneous	0.0	0.6	0.1	2.0	0.0	2.6	29.63
—	Total Manufacturing	54.2	102.1	73.3	150.4	22.2	402.1	16.90

[1] Tons of carbon equivalent can be converted to tons of carbon dioxide gas by multiplying by 3.667. One ton of carbon equivalent = 3.667 tons of carbon dioxide gas.

[2] The Standard Industrial Classification (SIC) system has been replaced by the North American Industry Classification System (NAICS).

[3] "Net Electricity" is obtained by summing purchases, transfers in, and generation from noncombustible renewable resources, minus quantities sold and transferred out. It excludes electricity generated from combustible fuels.

[4] Includes all other types of energy that respondents indicated were consumed.

[5] Carbon Intensity is million metric tons of carbon per quadrillion Btu. In the carbon intensity calculations electricity was evaluated as site electricity, the electricity delivered to the end user. Site electricity is equal to 3,412 Btu per kilowatthour.

(s)=Less than 0.05 million metric tons. Q=Data withheld because the relative standard error was greater than 50 percent.

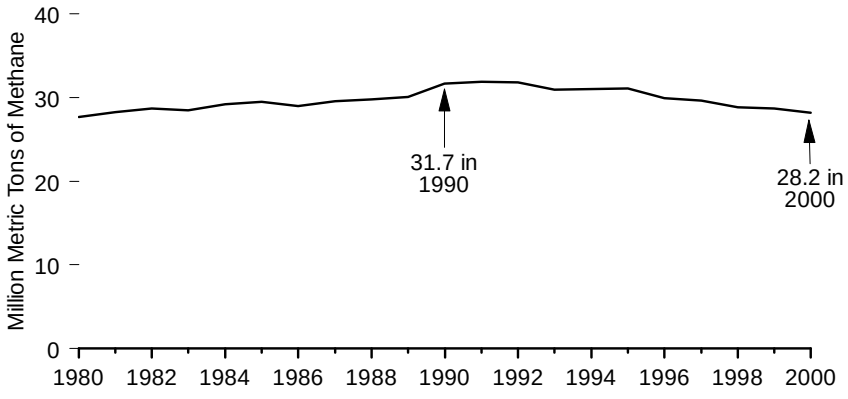
Notes: • For prior surveys and the current Manufacturing Energy Consumption Survey, emissions are available classified under the old Standard Industrial Classification System. See the Web Page. • The estimates are for the first use of energy for heat and power and as feedstocks or raw material inputs. First use is defined as the consumption of the energy that was originally produced offsite or was produced onsite from input materials not classified as energy. • See Table 2.3 for manufacturing energy use. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/emeu/mecs.

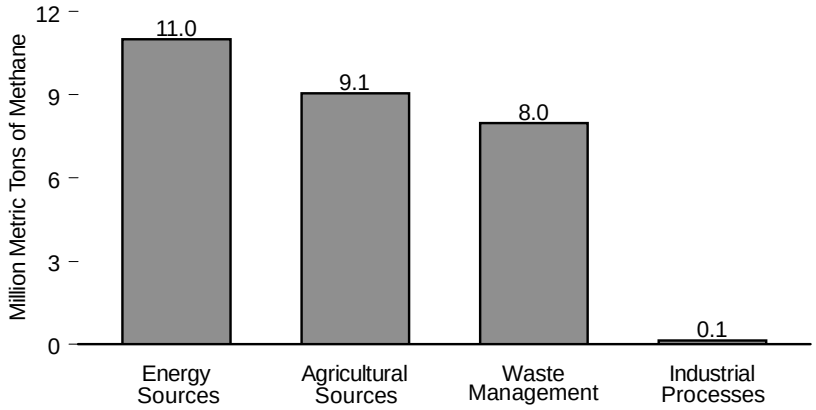
Sources: Energy Information Administration, Form EIA-846, "1998 Manufacturing Energy Consumption Survey," Form EIA-810, "Monthly Refinery Report" for 1998, and *Emissions of Greenhouse Gases in the United States 2000* (November 2001).

Figure 12.5 Methane Emissions

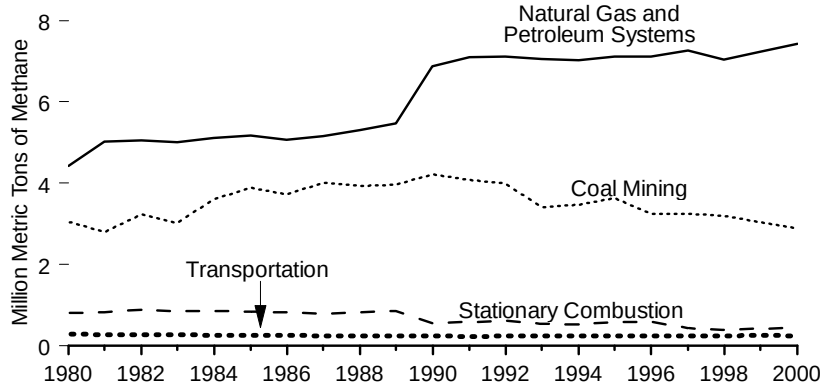
Total, 1980-2000



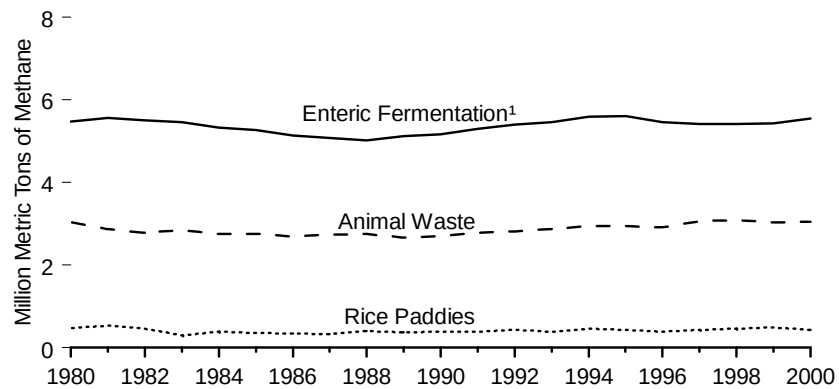
By Source, 2000



Energy Sources by Type, 1980-2000



Agricultural Sources by Type, 1980-2000



[1] Animals such as cattle, buffalo, sheep, goats, and camels emit methane as a product of digestion.

Note: Because vertical scales differ, graphs should not be compared.
Source: Table 12.5.

Table 12.5 Methane Emissions, 1980-2000

(Million Metric Tons of Methane)

Year	Energy Sources					Waste Management			Agricultural Sources					Industrial Processes	Total
	Natural Gas and Petroleum Systems	Coal Mining	Transportation	Stationary Combustion	Total	Landfills	Wastewater Treatment	Total	Enteric Fermentation [1]	Animal Waste	Rice Paddies	Crop Residue Burning	Total		
1980	4.42	3.05	0.28	0.81	8.56	9.85	0.14	9.99	5.47	R3.03	0.48	R0.04	R9.02	0.13	R27.70
1981	5.02	2.80	0.27	0.82	8.92	10.07	0.14	R10.20	5.56	R2.88	0.54	0.04	R9.03	0.14	R28.29
1982	5.05	3.23	0.27	0.88	9.42	R10.21	0.14	R10.35	5.50	R2.78	0.47	0.04	R8.79	0.10	R28.66
1983	5.01	3.02	0.27	0.86	9.17	R10.41	0.14	R10.55	5.46	R2.84	0.31	0.03	R8.64	0.11	R28.46
1984	5.12	3.60	0.26	0.86	9.85	R10.55	0.14	R10.70	5.33	R2.76	0.40	0.04	R8.53	0.11	R29.19
1985	R5.17	3.88	R0.26	0.84	R10.15	R10.67	0.14	R10.81	5.27	R2.76	0.36	0.04	R8.43	0.11	R29.50
1986	R5.06	3.73	R0.26	0.82	R9.86	R10.69	0.15	R10.83	5.13	R2.70	0.34	R0.04	R8.20	0.10	R29.00
1987	R5.16	4.01	R0.25	0.80	R10.22	R10.92	0.15	R11.07	5.08	R2.74	0.33	R0.04	R8.19	0.11	R29.59
1988	R5.31	3.93	R0.25	0.83	R10.32	R10.98	0.15	R11.13	R5.01	R2.76	0.41	0.03	R8.21	0.12	R29.78
1989	R,25.47	3.96	R0.25	0.86	R10.54	R11.08	0.15	R11.23	5.11	R2.66	0.38	0.04	R8.19	0.12	R30.08
1990	6.87	R4.22	0.25	0.56	R11.90	R11.21	0.15	R11.36	5.16	2.69	0.40	0.04	8.29	0.12	R31.67
1991	7.10	R4.08	0.23	0.59	R12.00	R11.07	0.15	R11.23	5.30	2.79	R0.40	R0.04	8.52	0.11	R31.86
1992	7.12	R3.99	0.24	0.62	R11.97	R10.91	0.15	R11.07	5.39	2.81	0.44	0.04	8.68	0.12	R31.84
1993	7.05	R3.41	0.24	0.54	R11.23	R10.68	0.16	R10.84	5.46	2.87	0.40	R0.04	R8.77	0.12	R30.96
1994	7.03	R3.47	0.24	0.53	R11.27	R10.39	0.16	R10.55	5.59	2.95	0.47	R0.05	R9.06	0.13	R31.00
1995	7.11	R3.63	0.25	0.58	R11.58	R10.17	0.16	R10.33	5.61	2.95	0.44	R0.04	R9.04	0.13	R31.08
1996	7.11	R3.24	0.24	0.58	R11.17	R9.65	0.16	R9.81	5.46	R2.92	0.40	0.04	8.83	0.13	R29.94
1997	7.26	R3.24	0.24	0.44	R11.18	R9.19	0.16	R9.35	5.42	R3.07	0.44	0.04	8.98	0.13	R29.63
1998	R7.04	R3.20	0.24	0.39	R10.88	R8.70	0.16	R8.86	5.41	3.09	R0.46	0.04	9.00	0.13	R28.88
1999	R7.24	R3.03	R0.26	R0.42	R10.94	R8.42	0.16	R8.59	R5.43	3.03	R0.49	0.04	R9.00	0.13	R28.66
2000P	7.43	2.89	0.25	0.44	11.01	7.82	0.17	7.99	5.54	3.05	0.43	0.05	9.06	0.14	28.19

[1] Animals such as cattle, buffalo, sheep, goats, and camels emit methane as a product of digestion.

[2] There is a discontinuity in this time series between 1989 and 1990 due to the expanded coverage of the emissions from oil production beginning in 1990.

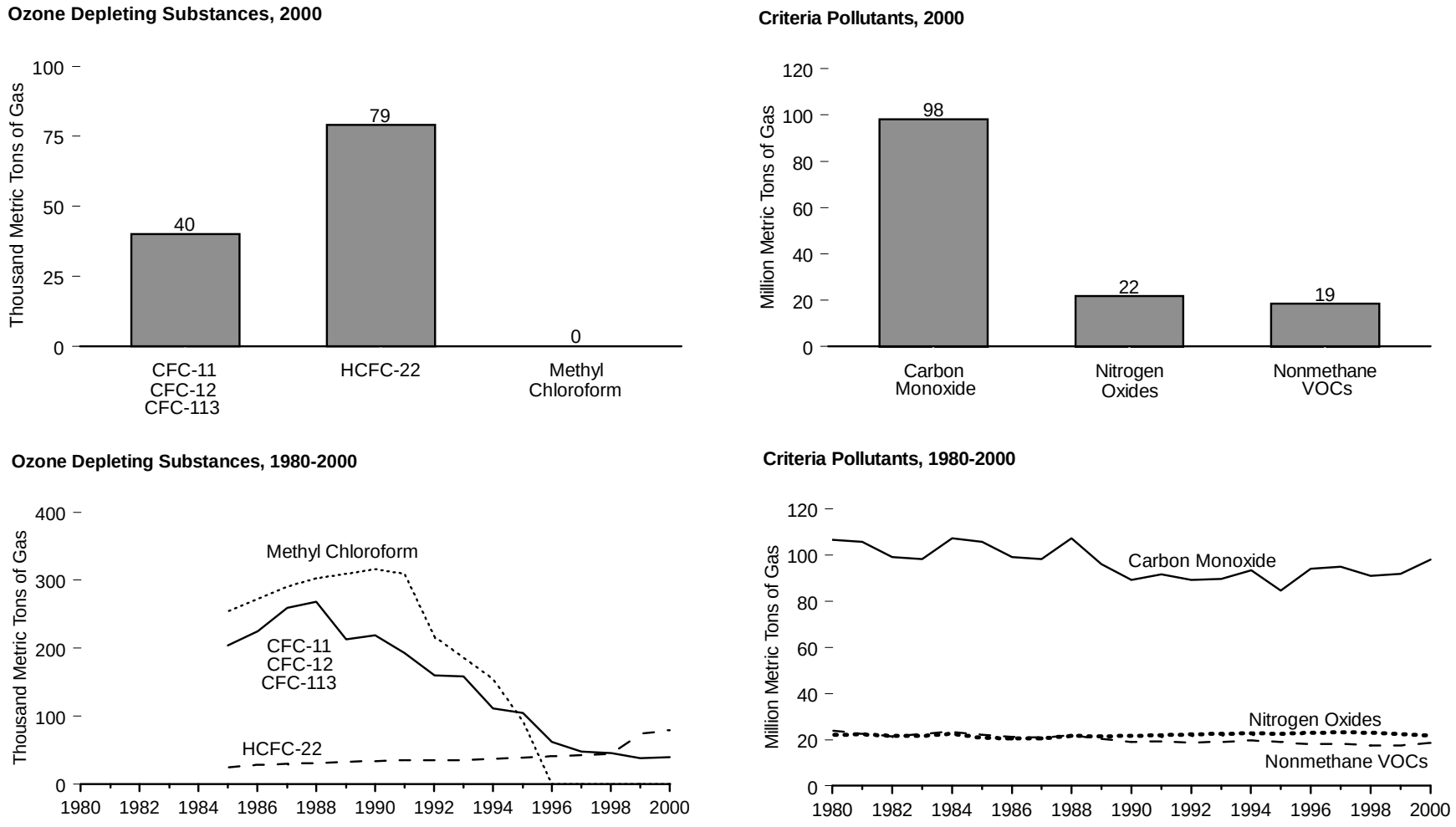
R=Revised. P=Preliminary.

Notes: • Emissions are from anthropogenic sources. Anthropogenic means produced as the result of human activities, including emissions from agricultural activity and domestic livestock. Emissions from natural sources, such as wetlands and wild animals, are not included. • Estimates of methane emissions are, in general, highly uncertain. The level of precision is probably on the order of 30 to 50 percent. For additional information, see "Appendix C, Tier 1 Uncertainty Analysis of Emissions Estimates" in the source report. • Under certain conditions, methane may be produced via anaerobic decomposition of organic materials in landfills, animal wastes, and rice paddies. • Because inventory methods for greenhouse gases are currently being developed, data are frequently revised on an annual basis in keeping with the latest findings of the international scientific community. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/environment.html.

Sources: • 1980 -1989—Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States,* annual reports. • 1990 forward—EIA, *Emissions of Greenhouse Gases in the United States, 2000* (November 2001), Table 14.

Figure 12.6 Ozone Depleting Substances and Criteria Pollutants



Notes: • CFC=chlorofluorocarbons; HCFC=chlorodifluoromethane; VOCs=volatile organic compounds. • Because vertical scales differ, graphs should not be compared.

Source: Table 12.6.

Table 12.6 Ozone Depleting Substances and Criteria Pollutants, 1980-2000

Year	Ozone Depleting Substances (thousand metric tons of gas)			Criteria Pollutants (million metric tons of gas)		
	CFC-11 CFC-12 CFC-113	HCFC-22	Methyl Chloroform	Carbon Monoxide	Nitrogen Oxides	Nonmethane VOCs
1980	NA	NA	NA	106.5	22.1	23.9
1981	NA	NA	NA	105.7	22.4	22.5
1982	NA	NA	NA	99.2	21.8	21.5
1983	NA	NA	NA	98.3	21.7	22.6
1984	NA	NA	NA	107.2	22.6	23.5
1985	R204.2	R24.9	R253.9	105.7	20.9	22.2
1986	R225.3	R28.5	R272.7	99.2	20.5	21.2
1987	R259.3	R29.7	R290.5	98.3	20.6	21.0
1988	R268.4	R30.9	R302.5	107.2	21.8	22.0
1989	R212.8	R32.7	R309.4	96.0	21.5	20.4
1990	R218.8	R34.0	R316.6	89.3	21.8	19.1
1991	R192.9	R35.4	R309.4	91.7	21.9	19.3
1992	R159.8	R35.2	R216.6	89.2	22.3	18.9
1993	R158.9	R35.3	R185.7	89.8	22.6	19.1
1994	R111.3	R37.7	R154.7	93.4	22.9	19.7
1995	R105.1	R39.3	R92.8	84.6	22.5	19.0
1996	62.1	R41.0	R0.0	R94.1	R23.1	R18.0
1997	48.2	R42.4	R0.0	R94.9	R23.3	R18.4
1998	45.9	R43.9	R0.0	R91.0	R23.0	R17.5
1999	R38.0	R74.1	R0.0	R91.8	R22.4	R17.6
2000P	40.0	79.1	0.0	98.1	21.9	18.5

R=Revised. P=Preliminary. NA=Not available.

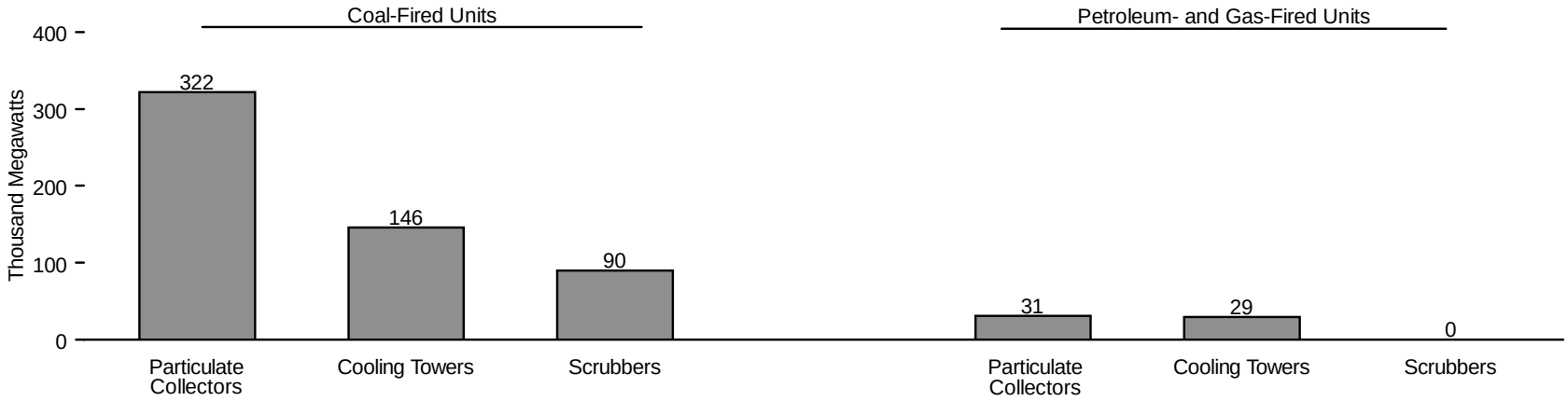
Notes: • CFC = chlorofluorocarbons; HCFC = chlorodifluoromethane; and VOCs = volatile organic compounds. • Ozone depleting substances are gases containing chlorine that are being controlled under the Montreal Protocol because they deplete the earth's stratospheric ozone layer. They are also powerful greenhouse gases that have direct and indirect impacts on the earth's climate. • CFC-113, carbon tetrachloride, and methyl chloroform were primarily used as solvents until the production of these ozone depleting compounds ended in 1995. Emissions of these compounds will eventually end completely when all stockpiles are used. • Criteria pollutants are regulated as urban air pollutants. They are also powerful greenhouse gases that have direct and indirect impacts on Earth's climate. • Because estimation methods for greenhouse gases are currently being developed, data are frequently revised on an annual basis in keeping with the latest findings of the international scientific community.

Web Page: http://www.eia.doe.gov/environment.html.

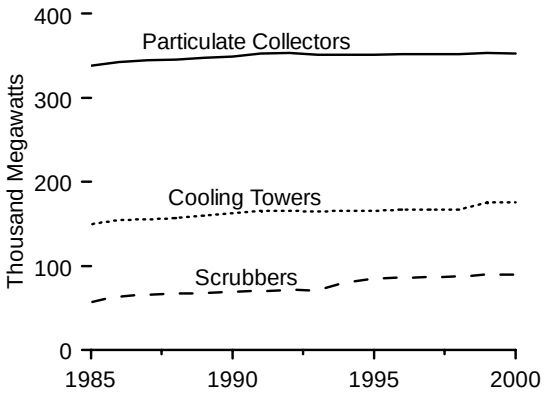
Sources: **Ozone Depleting Substances:** • 1980 forward—Estimates from the U.S. Environmental Protection Agency. **Criteria Pollutants:** • 1980-2000—EIA, Office of Integrated Analysis and Forecasting estimates based upon data obtained from the U.S. Environmental Protection Agency: Air Pollutant Emission Trends Summaries (May 2002), Tables A2, A4,and A5.

Figure 12.7 Installed Nameplate Capacity of Steam-Electric Generators for Electric Utility Plants With Environmental Equipment

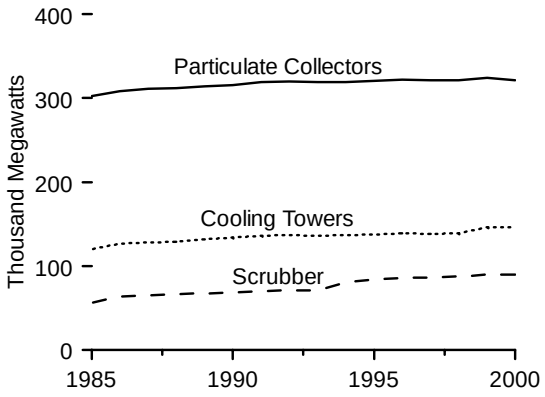
By Fuel and Equipment Type, 2000



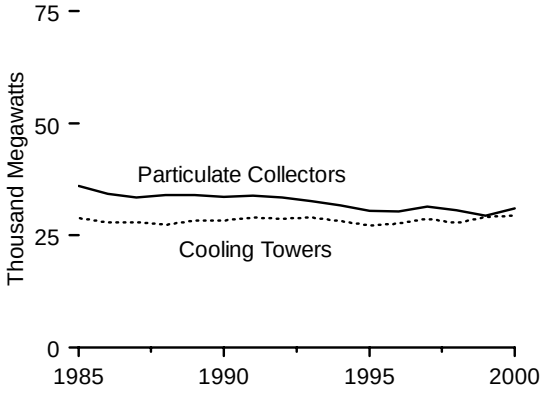
Total Units by Equipment Type, 1985-2000



Coal-Fired Units by Equipment Type, 1985-2000



Petroleum- and Gas-Fired Units by Equipment Type, 1985-2000



Note: Because vertical scales differ, graphs should not be compared.

Source: Table 12.7.

Table 12.7 Installed Nameplate Capacity of Steam-Electric Generators for Electric Utility Plants With Environmental Equipment, 1985-2000

(Megawatts)

Year	Coal-Fired				Petroleum- and Gas-Fired				Total			
	Particulate Collectors	Cooling Towers	Scrubbers	Total [1]	Particulate Collectors	Cooling Towers	Scrubbers	Total [1]	Particulate Collectors	Cooling Towers	Scrubbers	Total [1]
1985	302,056	120,591	56,955	304,706	36,054	28,895	65	62,371	338,110	149,486	57,020	367,078
1986	308,566	126,731	63,735	311,217	34,258	27,919	65	59,618	342,825	154,650	63,800	370,835
1987	311,043	127,875	65,688	312,885	33,431	27,912	65	58,783	344,474	155,786	65,753	371,668
1988	311,776	129,366	67,156	313,618	34,063	27,434	65	58,937	345,839	156,800	67,221	372,555
1989	313,708	131,697	67,506	315,549	33,975	28,386	65	59,736	347,655	160,087	67,534	375,257
1990	315,681	134,199	69,057	317,522	33,639	28,359	65	59,372	349,319	162,557	69,122	376,894
1991	319,127	136,270	70,294	319,189	33,864	29,067	260	59,773	352,990	165,337	70,554	378,963
1992	320,016	136,542	71,157	320,078	33,509	28,764	195	59,116	353,525	165,306	71,351	379,194
1993	318,830	136,028	70,890	318,893	32,620	28,922	0	58,580	351,451	164,951	70,890	377,473
1994	319,309	137,266	80,617	319,600	31,695	28,186	0	57,123	351,180	165,452	80,617	376,899
1995	320,268	137,825	84,260	320,467	30,513	27,187	0	54,942	351,198	165,295	84,677	375,691
1996	321,721	139,065	86,359	321,785	30,349	27,685	0	55,275	352,254	166,749	86,359	377,244
1997	320,832	138,120	86,605	320,896	31,422	28,766	0	56,485	352,254	166,886	86,605	377,381
1998	321,082	139,082	87,783	321,353	30,708	27,814	0	55,764	351,790	166,896	87,783	377,117
1999	324,109	146,377	89,666	331,379	29,371	29,142	0	55,812	353,480	175,520	89,666	387,192
2000[P]	321,636	146,093	89,675	328,741	31,090	29,427	0	57,697	352,727	175,520	89,675	386,438

[1] Components are not additive because some generators are included in more than one category.
P=Preliminary.
Note: Data cover only plants with fossil-fueled steam-electric capacity of 100 megawatts or greater.
Web Page: http://www.eia.doe.gov/fuelelectric.html.

Sources: • 1985-1987—Energy Information Administration (EIA), Form EIA-767, "Steam-Electric Plant Operation and Design Report." • 1988-1993—EIA, *Electric Power Annual,* annual reports. • 1994 forward—EIA, *Electric Power Annual Volume II,* annual reports.